

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

In the Claims:

Please amend the claims as follows:

1. (currently amended) A fluorescent optical imaging system comprising:  
an optical source for generating [an] a small diameter excitation beam to be directed at a sample to be imaged in a manner generating an emission beam from the sample;  
a detector for receiving the emission beam from the sample;  
a parabolic mirror between the optical source and the sample for reflecting the small excitation beam onto the sample and for receiving the emission beam from the sample in a manner where the excitation beam occupies a small part of the parabolic mirror and the emission beam occupies substantially all of the parabolic mirror and the excitation beam and emission beam at least partially occupy the same space; and  
an optical element for geometrically separating the excitation beam from the emission beam and directing the emission beam toward the detector.
2. (cancel)
3. (currently amended) An optical source for generating an excitation beam to be directed at a sample to be imaged in a manner generating an emission beam from the sample;  
a detector for receiving the emission beam from the sample;  
a parabolic mirror between the optical source and the sample for reflecting the excitation beam onto the sample and for receiving the emission beam from the sample in a manner where the excitation beam and emission beam at least partially occupy the same space;  
an optical element for geometrically separating the excitation beam from the emission beam and directing the emission beam toward the detector; and  
wherein the optical element includes a small mirror that is smaller than an emission beam.

4. (currently amended) An optical source for generating an excitation beam to be directed at a sample to be imaged in a manner generating an emission beam from the sample;  
a detector for receiving the emission beam from the sample;  
a parabolic mirror between the optical source and the sample for reflecting the excitation beam onto the sample and for receiving the emission beam from the sample in a manner where the excitation beam and emission beam at least partially occupy the same space;  
an optical element for geometrically separating the excitation beam from the emission beam and directing the emission beam toward the detector; and  
wherein the optical element includes a prism.
5. (cancel)
6. (currently amended) An optical source for generating an excitation beam to be directed at a sample to be imaged in a manner generating an emission beam from the sample;  
a detector for receiving the emission beam from the sample;  
a parabolic mirror between the optical source and the sample for reflecting the excitation beam onto the sample and for receiving the emission beam from the sample in a manner where the excitation beam and emission beam at least partially occupy the same space;  
an optical element for geometrically separating the excitation beam from the emission beam and directing the emission beam toward the detector; and  
wherein the optical source is adapted to generate first and second excitation beams to be directed by the [objective element] parabolic mirror toward the sample in a manner generating first and second emission beams.
7. (currently amended) A method of fluorescent optical imaging comprising the steps of;  
generating [an] a small diameter excitation beam to be directed at a sample to be imaged in a manner generating an emission beam from the sample;  
detecting the emission beam from the sample;  
directing the excitation beam onto a small part of parabolic mirror and onto the sample and gathering the emission beams with substantially all of the parabolic mirror, in a manner where the excitation beam and emission beam at least partially occupy the same space; and

geometrically separating the excitation beam from the emission beam and directing the emission beam towards the detector.

8. (cancel)

9. (currently amended) A method of fluorescent optical imaging comprising the steps of:  
generating an excitation beam to be directed at a sample to be imaged in a manner  
generating an emission beam from the sample;

detecting the emission beam from the sample;

directing the excitation beam onto a parabolic mirror and onto the sample and gathering  
the emission beams with the parabolic mirror, in a manner where the excitation beam and  
emission beam at least partially occupy the same space;

geometrically separating the excitation beam from the emission beam and directing the  
emission beam towards the detector; and

wherein the step of geometrically separating the excitation and emission beams includes use of a mirror with a small hole.

10. (currently amended) A method of fluorescent optical imaging comprising the steps of:  
generating an excitation beam to be directed at a sample to be imaged in a manner  
generating an emission beam from the sample;

detecting the emission beam from the sample;

directing the excitation beam onto a parabolic mirror and onto the sample and gathering  
the emission beams with the parabolic mirror, in a manner where the excitation beam and  
emission beam at least partially occupy the same space;

geometrically separating the excitation beam from the emission beam and directing the  
emission beam towards the detector; and

wherein the step of geometrically separating the excitation and emission beams includes use of a small mirror that is smaller than an emission beam.

11. (currently amended) A method of fluorescent optical imaging comprising the steps of:  
generating an excitation beam to be directed at a sample to be imaged in a manner  
generating an emission beam from the sample;

detecting the emission beam from the sample;

directing the excitation beam onto a parabolic mirror and onto the sample and gathering the emission beams with the parabolic mirror, in a manner where the excitation beam and emission beam at least partially occupy the same space;

geometrically separating the excitation beam from the emission beam and directing the emission beam towards the detector; and

wherein first and second excitation beams are directed by the parabolic mirror toward the sample in a manner generating first and second emission beams.